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J. C. VETTER & CO.

MANUFACTURERS AND PATENTEES OF

DRY LECLANCHÉ, GALVANIC AND FARADIC
BATTERIES.

STANDARD MILLI-AMPERE METERS,
CARBON CURRENT CONTROLLERS

AND THE HIGHEST GRADE OF

ELECTRO-MEDICAL APPARATUS.

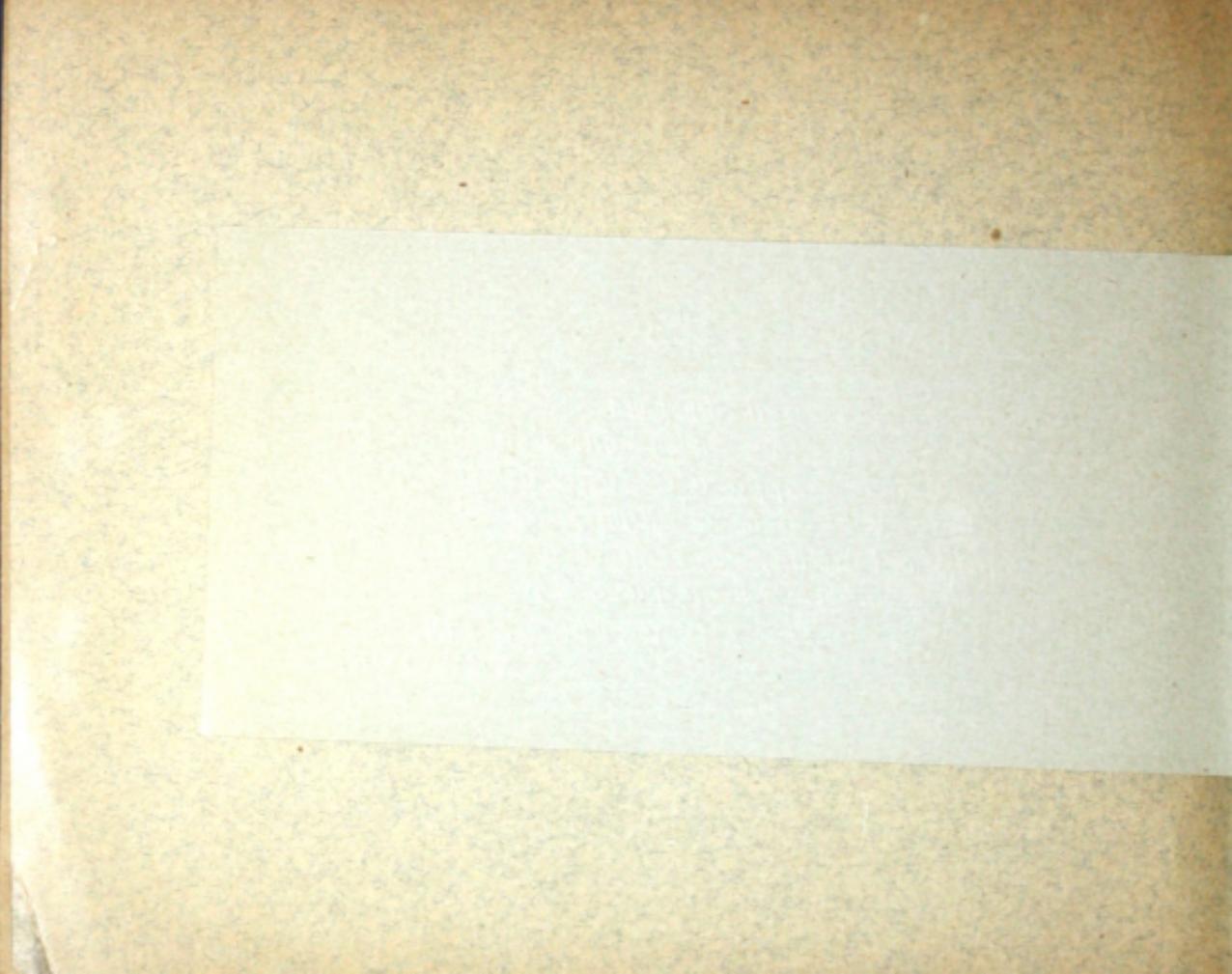
FACTORY:

214 East 47th Street,

New York.

OFFICE AND SALESROOMS:

104 East 28th Street.
(MEYROWITZ BUILDING.)



Manufacturing under Patents Granted



AUGUST 10th, 1875,

No. 166,488.

JANUARY 13th, 1880,

No. 223,558.

MAY 20th, 1884,

No. 298,922.

JUNE 17th, 1884,

No. 300,666.

NOVEMBER 17th, 1885,

No. 330,531.

MAY 21st, 1889,

No. 403,802.

OCTOBER 7th, 1890,

No. 438,037.

It will be to the advantage of every physician to investigate the numerous points of merit possessed only by

THE VETTER SYSTEM OF STANDARD



MEDICAL BATTERIES,

which have had a thorough test of over four years, by leading physicians and most prominent hospitals and institutions, and are everywhere pronounced the *very best*.

The special merits of this system of Electro-Medical apparatus are:

Batteries that require no preparations, no acids, no liquids, but *are always ready for use*.

Batteries that are reliable and powerful, possessing great recuperative power (lasting from two to four years when used, and do not deteriorate when not in use).

Portable Galvanic Batteries, with Mil-Am-meter, Rheostat, and accessories that are ingeniously constructed to fully meet the wants of the Medical profession.

The favorable opinion of prominent physicians and the endorsements of principal hospitals and institutions, are convincing proofs of their durability and merits. We guarantee all that we claim, and will cheerfully give references to any physician who may desire them.

J. C. VETTER & CO.,

214 East 47th Street, N. Y.

THE LECLANCHÉ FARADIC,

Vetter's Patent, 1885,

Is a New Departure, and Entirely Original Design.

THE ONLY RELIABLE LOW PRICED INSTRUMENT
ON THE MARKET.

It is simplicity itself, and in ordinary use will run upwards of two years without any attention or expenditure to the Battery.

The advantages justly claimed for this Battery over all others are :

It is always ready for use.

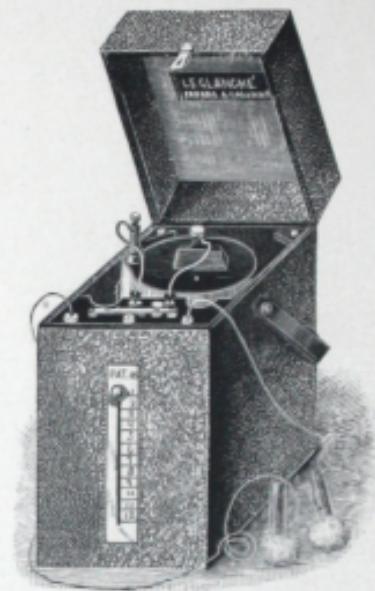
No strong poisonous or dangerous acids required.

No zincks to raise or lower; no drip cups; no fluids to be removed, and does not corrode or lose power when not in use.

The Leclanché cell is universal; it can be obtained in any part of the world, and will fit our Faradic instrument. It is long of life and very constant in its action from day to day.

The Leclanché Faradic has three currents—mild, medium and strong—each of which can be regulated from mild to strong by means of our improved and most perfect graduator.

We make them in three styles, the metallic parts nickel-plated.



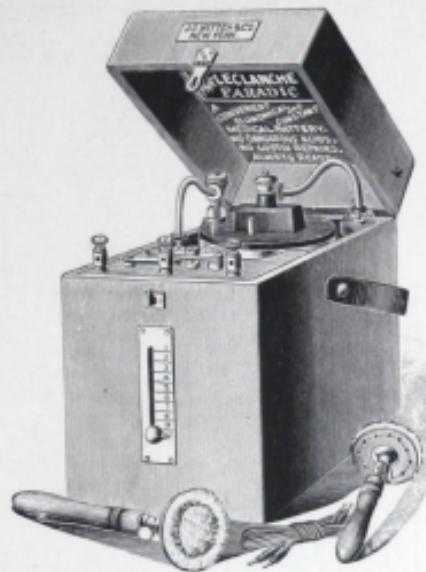
No. 1 LECLANCHÉ FARADIC BATTERY.

MOUNTED IN AN ORNAMENTAL COVERED CASE.

For patients' use, with regular Leclanché Liquid Cell,
With one large No. 3 Vetter Dry Cell,

Price, \$10.00

" 11.00



No. 2 LECLANCHÉ FARADIC BATTERY.

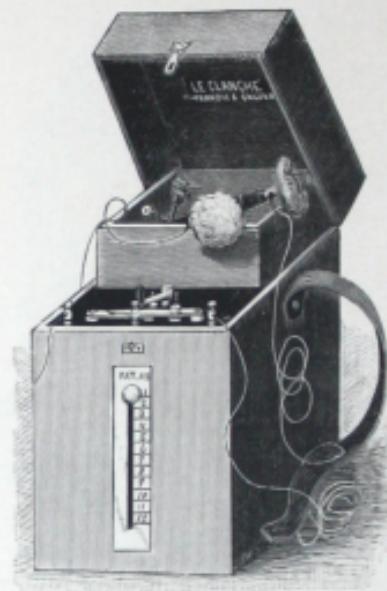
IN FINELY POLISHED HARDWOOD CASE, WITH UNIVERSAL HANDLE ELECTRODES,
DESIGNED FOR PHYSICIANS' USE.

With regular Leclanché Liquid Cell,

Price, \$13.00

With one large No. 3 Vetter Dry Cell,

" 14.00



No. 3 DRY LECLANCHÉ FARADIC BATTERY.

A VERY POWERFUL AND SUPERIOR INSTRUMENT, IN FINELY POLISHED HARDWOOD CASE.

Supplied with four No. 2 Vetter's Dry Leclanché Disque Cells, full directions, ready for use,

Price, \$20.00

THE VETTER

PORTABLE

DRY LÉCLANCHÉ GALVANIC BATTERIES

ALWAYS READY FOR USE.

NO RAISING OF ELEMENTS.

NO DRIP CUPS, NO DANGEROUS ACIDS.

Does not corrode or lose power when not in use. It is apparent that a Battery having the above points of merit will be appreciated by the Medical profession.

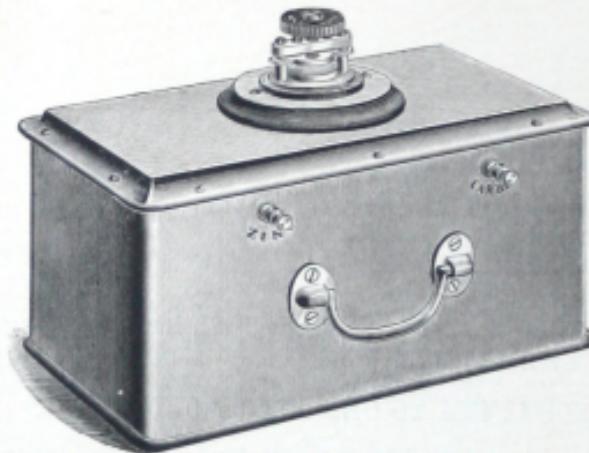
THERE IS NO COMPLICATED MECHANISM TO GET OUT OF ORDER.

It is a Battery that is constant from day to day, lasting from two to four years, and when the cells have become exhausted new ones can be procured at a nominal price and replaced by any one, at less than the usual cost of repairs of Batteries of other make.

PRICE LIST OF PORTABLE

DRY GALVANIC BATTERIES.

Always Ready for Use.



A neat Mahogany or Walnut finished case with Carbon Current Controller, Binding Posts, Conducting Cords, one pair Universal Handles and one pair 2-inch Sponge Discs. The metallic parts nickel-plated.

E.M.F.	VOLTS	SIZE, INCHES	PRICE
18 Cells,	28.44	11 $\frac{1}{2}$ x 6 $\frac{3}{8}$ x 6 $\frac{1}{2}$	\$25.00
24 "	37.92	15 x 6 $\frac{3}{8}$ x 6 $\frac{1}{2}$	30.00
30 "	47.40	11 $\frac{3}{4}$ x 10 x 6 $\frac{1}{2}$	35.00
40 "	62.20	15 x 10 $\frac{1}{4}$ x 6 $\frac{1}{2}$	44.00
50 "	79.00	19 x 9 $\frac{1}{2}$ x 6 $\frac{1}{2}$	52.00

The above is a very Economic, Practical and Reliable Galvanic Outfit for the busy practitioner or when a Battery is required and prescribed for patients' use.

COMPLETE PORTABLE
DRY GALVANIC BATTERY.



SIZE 15 x 6½ x 8¾ INCHES.

once convert a 24-cell Battery into one of as great a power as will be required for Office, Clinic or Hospital use.

PRICE LIST

OF COMPLETE PORTABLE GALVANIC BATTERIES.

24 Cells, with Rheostat,	-\$50.00
24 " " and Milliamperemeter,	-\$5.00

DRY AUXILIARY BATTERIES.

READY FOR USE.



marked C and carbon to post marked Z; thus we convert a complete portable battery into a most powerful one for use in office, hospital or clinic.

PRICE LIST.

OF DRY PORTABLE AUXILIARY BATTERIES.

12 Cells	E. M. F. 15.96 VOLTS.	SIZE $7\frac{1}{2} \times 6\frac{3}{8} \times 6\frac{1}{2}$ INCHES.	PRICE \$10.00
18 "	28.44 "	" $11\frac{1}{2} \times 6\frac{3}{8} \times 6\frac{1}{2}$ "	" 15.00
24 "	37.92 "	" 15 x $6\frac{3}{8} \times 6\frac{1}{2}$ "	" 20.00
30 "	47.40 "	" $11\frac{3}{4} \times 10 \times 6\frac{1}{2}$ "	" 25.00
40 "	62.20 "	" 15 x $10\frac{1}{2} \times 6\frac{1}{2}$ "	" 34.00
50 "	79.00 "	" 19 x $9\frac{1}{4} \times 6\frac{1}{2}$ "	" 42.00

This illustration represents one of our Auxiliary Batteries. We make them in six sizes. The case is well made and hard-wood finish. The cells are our No. 1 Dry, (described on page 13) connected in series terminating with binding posts marked zinc and carbon, and furnished with a pair of conducting cords.

This Battery can be readily connected with our complete Galvanic Battery. (page 9) The zinc of auxiliary to post



THE VETTER DRY BATTERY.

There is no other Battery in the world possessing these telling qualities:

NO ACID.

NO LIQUID.

NO GLASS.

HIGH ELECTRO MOTIVE FORCE (1.58 Volts).

LOW INTERNAL RESISTANCE (.54 Ohms).

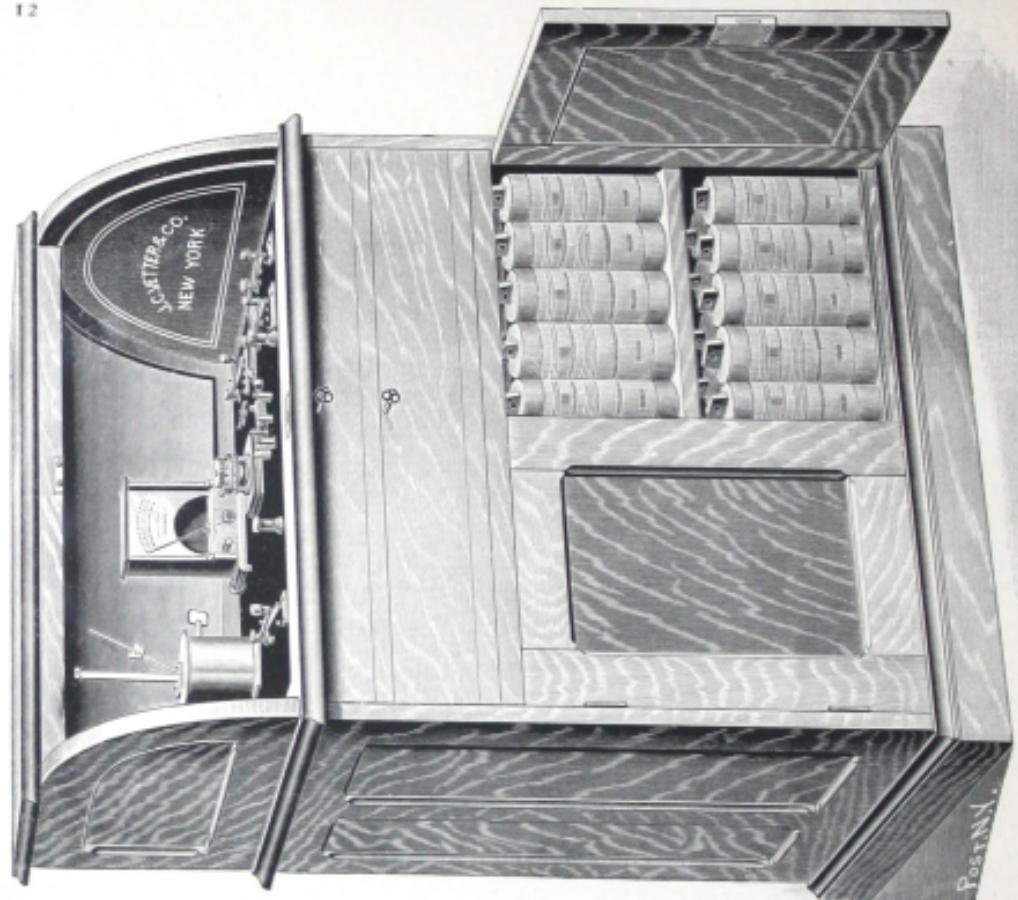
GREATEST RECUPERATIVE POWER.

NEAT, LIGHT, EFFECTIVE and **MOST ECONOMICAL.**

CHARGED READY FOR USE.

We make a liberal Discount to Physicians, when ordering
Thirty or more of these Cells.

No. 1.	Portable Battery Cell,	-	-	-	Size, 1 $\frac{1}{2}$ x 5 $\frac{1}{2}$ inches.	Price, 85 Cts.
" 2.	Cabinet or Office Battery Cell,	-	-	-	" 2 $\frac{1}{2}$ x 6 "	" 90 "
" 3.	Large Cell for our No. 1 and No. 2 Leclanché Faradic Instruments,	-	-	-	4 x 7 "	\$1.50



CABINET GALVANIC AND FARADIC BATTERY.

DESCRIPTION ON THE FOLLOWING PAGE.

Cabinet Galvanic and Faradic Battery.

Comprising a complete combination of J. C. Vetter & Co.'s latest and most improved batteries and instruments, mounted in a handsome quartered Oak Cabinet.

The principle points of merit embraced in this system of Cabinet Battery are :

- 1st.—Batteries that have now been in daily use for upward of four years. *Always in order and ready for use.*
No Glass. No Liquids, Powerful and Economical.
- 2d.—The Vetter Carbon Rheostat controls the current with the greatest nicety (from off or no current to the full capacity of the battery.) A substantial instrument having no glass, no liquids and dispensing with a mass of wires.
- 3d.—The Vetter Mil-Am-meter, *ACCURATELY STANDARDIZED, large plain Index, jeweled bearings; no adjusting necessary;* (does not oscillate or bob) readings can be taken instantly and can be seen at a distance.
- 4th.—The Vetter Faradic instrument is arranged with a convolution switch, for putting in circuit the mildest to the most powerful current desired. Each of these currents can be graduated to the utmost delicacy, or to their greatest power, by means of our improved calibrated scale graduator.
- 5th.—This Apparatus is provided with but two binding posts and a current switch, thus obviating the necessity of changing the conducting cords when desiring to use either the Galvanic, Faradic or combined currents.
- 6th.—The Vetter improved Rheotome has decided advantages. It can be instantly switched into circuit to interrupt (very slow or most rapid) either the Galvanic, Faradic or combined currents.
- 7th.—This is the most complete and best Cabinet Battery Outfit ever offered for the price.

THE VETTER CABINET BATTERY.

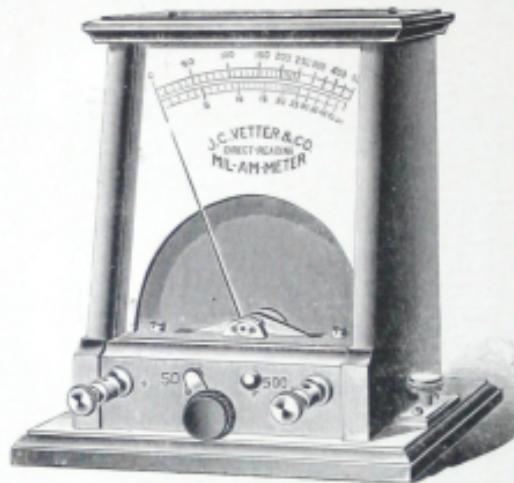
DESCRIBED IN DETAIL.

50 No. 2 Dry Cells,	See page No.	11.	One pair	Universal Handles.
1 Milliamperc Meter,	"	14.	"	Two-inch Sponge Discs.
1 Carbon Current Controller,	"	15.	"	Conducting Cords.
1 Rheotome	"	16.	"	Small Disc Electrodes.
1 Faradic Outfit.				1 Interrupting Handle.
Pole Changer, Switches, etc., mounted in handsome quartered Oak Cabinet.				

PRICE, \$175.00, NET.

MIL-AM-METERS.

Specially Designed for Physicians' Use.



ONE-THIRD ACTUAL SIZE.

reading from 0 to 50 Milliamperes. When placed on 500, read black or top scale, 0 to 500. It is mounted in a well made Mahogany or Antique Oak case.

PRICE,

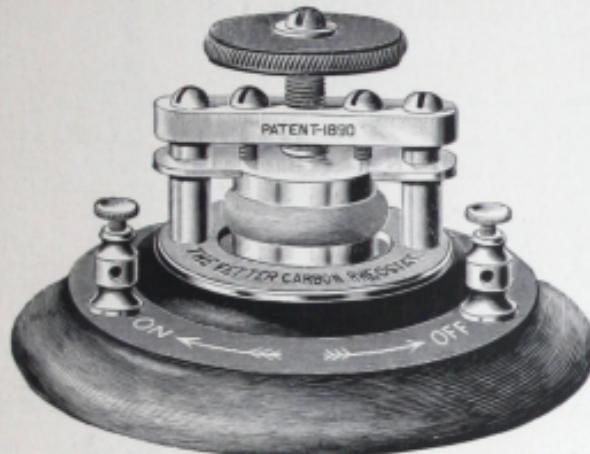
\$35.00

The Vetter Standard Direct-Reading Mil-Am-Meter places within reach of the physician, a means of obtaining quick, accurate and reliable electrical measurements, such as have hitherto been unattainable. No time is required for adjusting or waiting for the needle to come to rest, but readings can be taken immediately as soon as the circuit is closed. These advantages are obvious to all, and are possessed only by the Vetter Standard Instruments.

This instrument is accurately calibrated and standardised. The staff is of hardened steel, pivoted in ruby bearings with jeweled end pieces; it is provided with a switch, which, when placed on the 50 button, selects the lower or red scale on dial,

The Vetter Current Controller.

ENTIRELY NEW AND INGENIOUS DESIGN. COMPACT, DURABLE, AND WELL FINISHED.



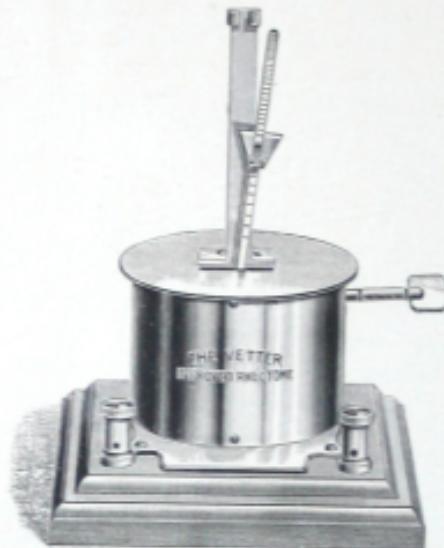
the Rheostat follows the movements of the screw through very wide limits, thus controlling from off or no current, to the full capacity of the battery.

This instrument is far in advance of any Rheostat, Switch Board, or Cell Selector. It imposes equal work upon all the cells of a battery, maintaining the current throughout the series of uniform and equal strength. There is also a saving of a mass of complicated wires from the cells, as only the two terminal wires from the battery are necessary.

The absence of liquid in glass, and the many advantageous features it possesses make it the most desirable instrument for the purpose. The above cut is three-fourths the actual size.

PRICE,

\$15.00

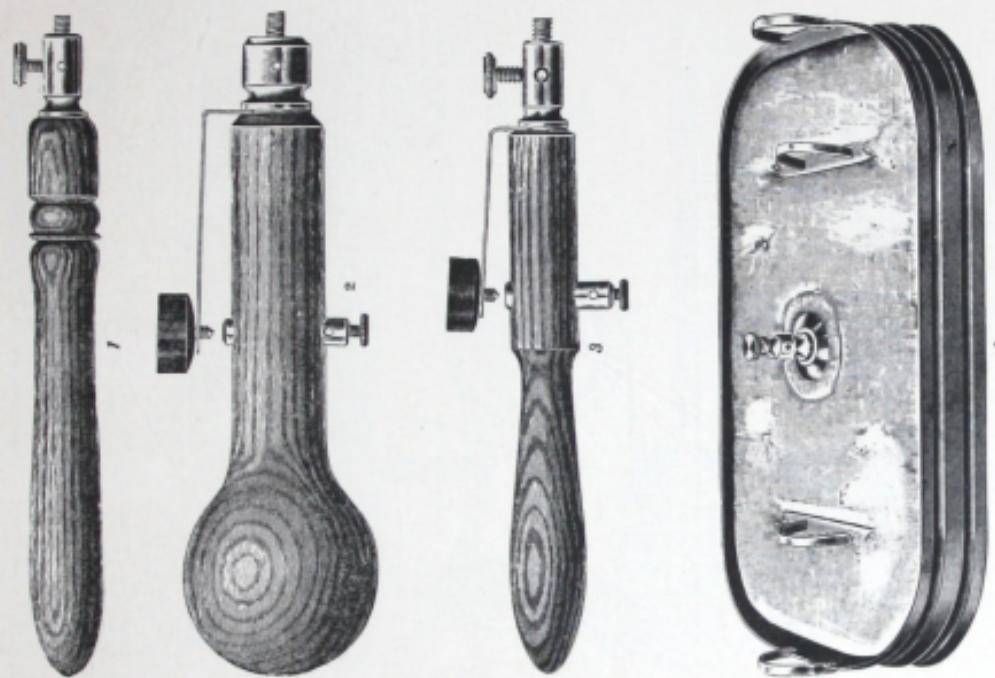


THE VETTER SUPERIOR RHEOTOME.

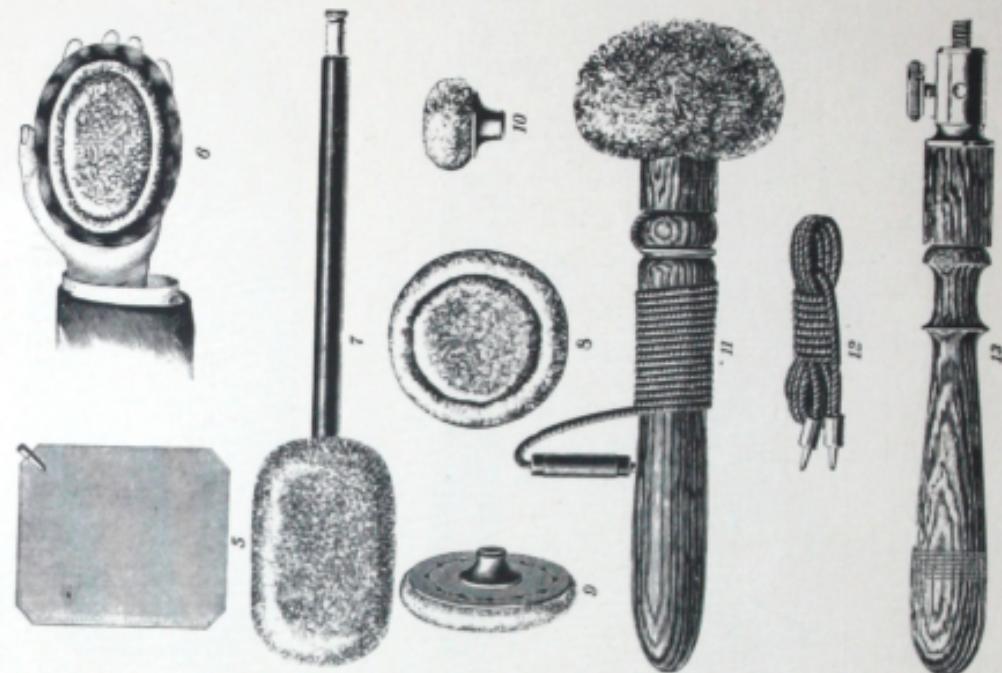
Can be put in circuit with either the Galvanic or Faradic current. It can be adjusted to pulsate (with time) either very slow or rapid interruptions.

It is substantially made, highly finished and nickel-plated.

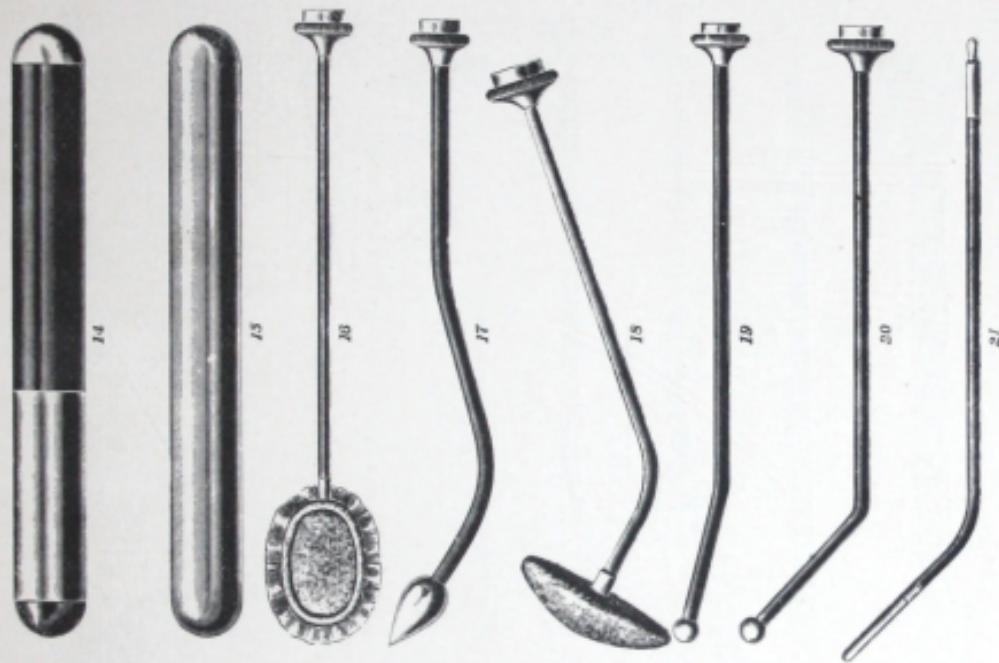
PRICE, \$25.00.



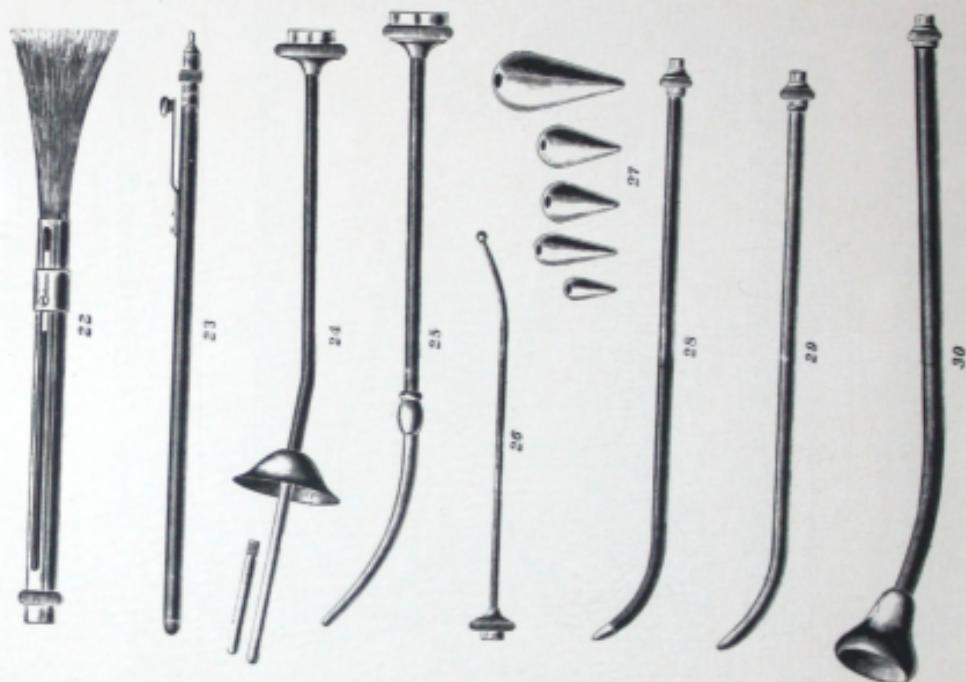
PRICE OF ELECTRODES ON PAGE 21.



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Price List of Electrodes.

	PRICE, EACH.		PRICE, EACH.
No. 1. Universal Handle, -	\$.75	No. 18. Universal Electrode, -	\$1.75
" 2. Interrupting " -	1.50	" 19. Combination Electrode, four extra olives, -	3.50
" 3. " " -	1.25	" 20. Nasal Electrode, -	1.50
" 4. Abdominal Electrode, -	4.00	" 21. Intra-Uterine Electrode, nickel-plated, -	2.00
" 5. Foot Plate, " -	1.00	" 22. Wire Brush, -	2.00
" 6. Flexible Sponge Electrode, -	2.00	" 23. Needle Holder, -	1.50
" 7. Hand " " -	1.50	" 24. Uterine Electrode, -	2.50
" 8. 2-Inch " " -	.75	" 25. Intra-Uterine Electrode, gold-plated, -	3.50
" 9. 1½-Inch " " -	.50	" 25. Intra-Uterine Electrode, nickel-plated, -	2.00
" 10. Small " " -	.50	" 26. Flex. Platinum Point Intra-Uterine Electrode, -	6.00
" 11. No. 1 Leclanché Faradic Electrode, -	1.00	" 27. Olives, for Universal Electrodes, -	.50
" 12. Conducting Cords, cotton, -	.50	" 28. Urethral Electrode, insulated, -	1.50
" 12. " " silk, -	.75	" 29. " " all metal, -	1.00
" 13. No. 3 Universal Handle, -	.75	" 30. Uterine Cup, with insulated stem, -	2.50
" 14. Vaginal Electrode, rubber insulation, -	2.50		
" 15. Vaginal Electrode, (all metal)	1.50		
" 16. Spinal Electrode, -	2.00		
" 17. Rectal Electrode, -	2.00		

ELECTRICAL NOTES AND DEFINITIONS.

Resistance, R.—The **Ohm** is equal to 10^8 C. G. S.* unit of resistance. **Legal Ohm** (Paris Congress, April, 1884) is the resistance of a column of pure mercury, one square millimeter in section, and 106 centimeters long at the temperature of melting ice.

One volt is that Electro-Motor force which will send a current of one ampere through a resistance of one ohm.

One ampere decomposes .000009324 gramme of water (H_2O) per second, or deposits 1.118 milligrams of silver per second, = 4.025 grammes per hour.

Thus we see that in every circuit there are three things—E. M. F., current and resistance; if we know the values of any two of these, it is possible to find the value of the third. We can do this according to Ohm's law.

Ohm's law:

Let E stand for E. M. F. (volts.)

" C " current (ampères.)

" R " resistance (ohms.)

Then

$$\frac{E}{R} \text{, or } R = \frac{E}{C}, \text{ or } E = C \times R.$$

Thus suppose in a circuit there is a battery having an E. M. F. of 50 volts, and that the circuit has a total resistance of 25 ohms, we can find the strength of the current by dividing the volts by the ohms. Thus—

$$\frac{50 \text{ volts}}{25 \text{ ohms}} = 2 \text{ amperes.}$$

In the second case, we know the E. M. F. of the current in the circuit; let them be respectively 30 volts and 45 amperes. Then—

$$\begin{aligned} \text{the resistance of the circuit} &= \frac{30 \text{ volts}}{45 \text{ amperes}} \\ &= \frac{2}{3} \text{ of an ohm.} \end{aligned}$$

In the third case—when we know the current and resistance have to find the E. M. F.—let the current strength be 7 amperes, and the total circuit resistance 3 ohms. Then—

$$\text{E. M. F.} = 7 \text{ amperes} \times 3 \text{ ohms} = 21 \text{ volts.}$$

Very small currents, as used in electrical treatment of disease, are measured in milliamperes.

$$1 \text{ milliampere} = \frac{1}{1000} \text{ th ampere}$$

$$\therefore 1 \text{ ampere} = 1000 \text{ milliamperes.}$$

EDISON DEFINES AMPERE AND VOLT.

The following question was put to Thomas A. Edison by John S. Wise in a recent lawsuit in which Mr. Edison was a witness. The answer by Mr. Edison gives a pretty clear definition of the words "ampere" and "volt," which are much used about this time :

Q.—Explain what is meant by the number of volts in an electric current.

A.—I will have to use the analogy of a waterfall to explain. Say we have a current of water and a turbine wheel. If I have a turbine wheel and allow a thousand gallons per second to fall from a height of one foot on the turbine I get a certain power, we will say one horse power. Now the one foot of fall will represent one volt of pressure in electricity, and the thousand gallons will represent the ampere or the amount of current; we will call that one ampere. Thus we have a thousand gallons of water, or one ampere, falling one foot, or one volt, or under one volt of pressure, and the water working the turbine gives one horse power. If we now go a thousand feet high, and take one gallon of water and let it fall on the turbine wheel, we will get the same power as we had before, namely, one horse power.

We have got a thousand times less current or less water, and we will have a thousandth of an ampere in place of one ampere, and we will have a thousand volts in place of one volt, and we will have a fall of water a thousand feet as against one foot. Now the fall of the water or the height from which it falls is the pressure of volts in electricity, and the amount of water is the amperes. It will be seen that a thousand gallons a minute falling on a man from a height of only one foot would be no danger to the man, and that if we took one gallon and took it up a thousand feet and let it fall down it would crush him. So it is not the quantity or current of water that does the damage, but it is the velocity or the pressure that produces the effect.

—*New York Sun.*

TERMS.



Parties not known to us will please remit the amount with order, or if preferred, goods will be shipped C. O. D., in which case a sufficient amount to cover expenses of transportation must accompany order.

By remitting Draft, Express or Postal Order, collection charges are saved. When neither can be obtained, forward money in Registered Letter.

When ordering an instrument, please designate kind, number and price; furnish Name, Town, County and State, plainly and in full.



